

## ABSTRACT

The invention concerns a plasma reactor employing a chamber enclosure including a process gas inlet and defining a plasma processing region. A workpiece support pedestal capable of  
5 supporting a workpiece at processing location faces the plasma processing region, the pedestal and enclosure being spaced from one another to define a pumping annulus therebetween having facing walls in order to permit the process of gas to be evacuated therethrough from the process region. A pair of opposing plasma confinement magnetic poles within one of the facing walls of the annulus ,  
the opposing magnetic poles being axially displaced from one another. The magnetic poles are  
10 axially displaced below the processing location by a distance which exceeds a substantial fraction of a spacing between the facing walls of the annulus.